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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/812,802	03/30/2004	Constantin Bucur	O2M03.18CIP	6035
7590	09/15/2006		EXAMINER	
Scott R. Faber Grossman Tucker Perreault & Pfleger, PLLC 55 South Commercial Street Manchester, NH 03101			TIBBITS, PIA FLORENCE	
			ART UNIT	PAPER NUMBER
			2838	

DATE MAILED: 09/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

SF

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/812,802	BUCUR ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Pia F. Tibbits	2838	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 07 July 2006.
- 2a) This action is FINAL.                            2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-13, 15 and 17-20 is/are pending in the application.
  - 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-13 and 15 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    - a) All    b) Some \* c) None of:
      1. Certified copies of the priority documents have been received.
      2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
      3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____.                                     |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>8/23/06(2pgs)</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____.                         |

**DETAILED ACTION**

This Office action is in answer to the election response filed 7/7/2006. Claims 1-13, 15 were elected without traverse, while claims 14 and 16 are canceled, and claims 17-20 are withdrawn.

***Priority***

The instant application, 10812802 is a CIP of several US applications, i.e., a continuation in part of 10652110, now US publication 20040145348, which is a continuation in part of 10364228, now US 6977482, which Claims Priority from provisional Application 60484635, which is a continuation in part of 09960453, now US 6741066. None of these applications describe a "wake up circuit". Applicant is cautioned that the filing date of U.S. Parent Application Can **Only** Be Used as the 35 U.S.C. 102(e) Date If It Supports the Claims of the Issued Child: in order to carry back the 35 U.S.C. 102(e) critical date of the U.S. patent reference to the filing date of a parent application, the \*\*>U.S. patent reference< must \* have a right of priority to the earlier date under 35 U.S.C. 120 or 365(c) and \*>the parent application must< support the invention claimed as required by 35 U.S.C. 112, first paragraph. "For if a patent could not theoretically have issued the day the application was filed, it is not entitled to be used against another as secret prior art" under 35 U.S.C. 102(e). *In re Wertheim*, 646 F.2d 527, 537, 209 USPQ 554, 564 (CCPA 1981). **MPEP 2136.03** PARENT'S FILING DATE WHEN REFERENCE IS A CONTINUATION-IN-PART OF THE PARENT.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

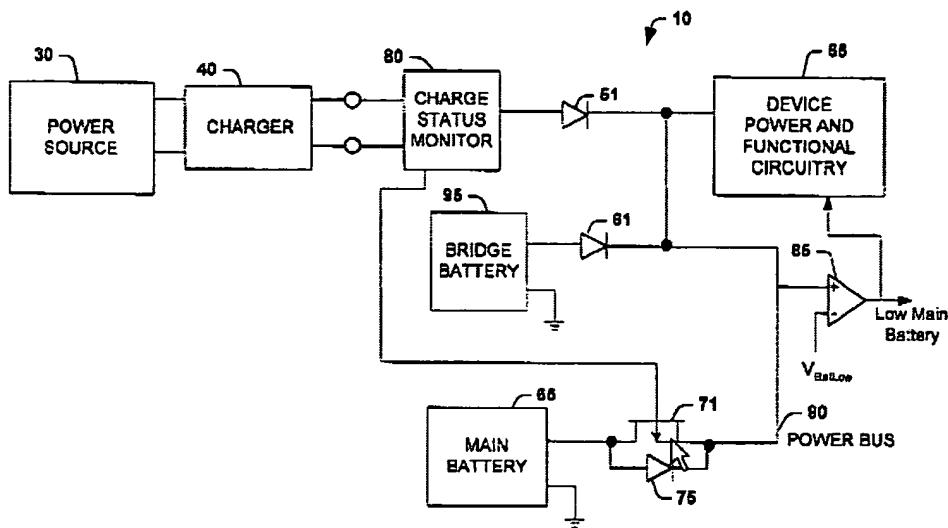
- (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosed prior art, **Leppo et al.** [6172478] in view of disclosed prior art, **Johnson, Jr. et al.** [6492792] and **NCP802** data sheet.

The recitation a "wake up circuit comprising: a comparison circuit adapted to receive a first signal representative of a charging current level provided to a battery via a path and a second signal representative of a predetermined wake up current level and to provide a comparison output signal in response to said first and second signal; and an output decision circuit adapted to receive at least said comparison output signal" was interpreted in light of the specification describing at paragraph [0024] that "fig. 16 is a block diagram of another embodiment of an electronic device having a **wake up circuit to control charging current to a deeply discharged battery**", and at paragraph [0090] "a wake up circuit comprising a comparison circuit adapted to receive a first signal representative of a charging current level provided to a battery via a path and a second signal representative of a predetermined wake up current level and to provide a comparison output signal in response to the first and second signal."

Leppo discloses in figures 2-6 a wake up circuit 10 comprising:

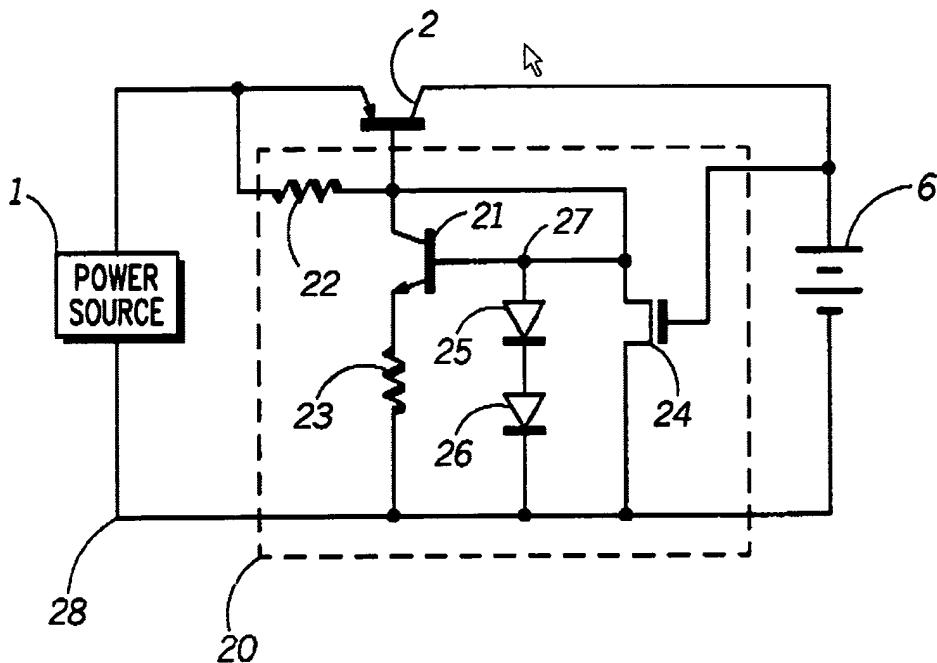
a comparison circuit 85 configured to receive a first signal representative of a charging current level [see fig.3, column 5, lines 54-55] provided to a battery via a path/power bus 90 and a second signal representative of a predetermined wake up current level  $V_{BatLow}$  [see fig.3; column 5, lines 57-59] and to provide a comparison output signal in response to said first and second signal [see column 5, lines 59-67]; and



an output decision circuit 80 configured to receive at least said comparison output signal [see fig.3] to a switch 71 to control a state of said switch, said switch coupled to said path, said output decision circuit providing a comparison output signal [see fig.3; column 5, lines 43-47]. Leppo does not disclose a selector signal from a selector circuit, said output decision circuit providing said selector signal.

Johnson discloses in figures 2-4 a selector circuit 20 that includes trickle charge control to facilitate low-current charging for cells with voltages below their predetermined operating thresholds, i.e., deeply discharged [see fig.2; column 2, lines 40-43].

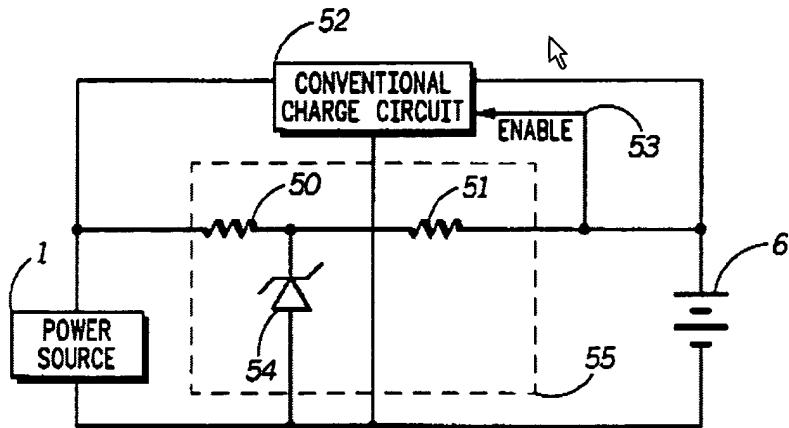
(6) Referring now to FIG. 2, illustrated therein is one preferred embodiment of this invention. The circuit 20 includes trickle charge control to facilitate low-current charging for cells with voltages below their predetermined operating thresholds. The circuit 20 works as follows: First,



Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify Leppo's apparatus and include a selector circuit 20, as disclosed by Johnson, in order to facilitate low-current charging for cells with voltages below their predetermined operating thresholds, i.e., deeply discharged.

As to claims 2-4, see remarks and references above.

As to claim 5, wherein said output decision circuit is further configured to receive at least one additional input signal in addition to said comparison output signal and said selector signal, said at least one additional input signal being an enabling signal, said output decision circuit responsive to said enabling signal to provide said comparison output signal to said switch if said enabling signal is in a first state: Johnson discloses a circuit 30 comprising a voltage sensing circuit such as NCP802 [see fig.4; column 3, line 54]. The NCP802 data sheet discloses a level shifter outputting signal CO enabling battery pack charging that toggles a charging pin when the cell is within its preferred operating range [see page 3].



**FIG. 4**

As to claim 7, the recitation "maximum time interval" was interpreted in light of the specification describing at paragraph [0089] "Yet another signal that may be received by the output decision circuit 1612 via bus 1614 is a maximum wake up charge time signal. If this signal indicates that the battery has been provided a wake up charging current for more than a maximum time interval, then the output decision circuit 1612 may stop wake up charging".

Leppo discloses at column 4, lines 53-56, that after a maximum time interval/ predetermined amount of time, the charge status monitor 45 changes the state of the FET switch 71, so that the FET switch 71 enters an open state and stops charging the battery 65.

battery 65. After a predetermined amount of time, the charge status monitor 45 changes the state of the FET switch 71, so that the FET switch 71 enters an open state and stops charging the main battery 65.

As to claim 8, as to the use of an error amplifier, absent any criticality, is only considered to be the use of "optimum" or "preferred" material that a person having ordinary skill in the art at the time the invention was made using routine experimentation would have found obvious to provide for the comparison circuit disclosed by Leppo in order to increase the amplitude of the electrical signal output

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since it has been held to be a matter of obvious design choice and within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use of the invention. See *In re Leshin*, 125 USPQ 416. *In re Aller*, 105 USPQ 233 (CCPA 1955), *In re Boesch*, 617 F. 2d 272, 205 USPQ 215 (CCPA 1980).

As to claims 9-12, see remarks and references above.

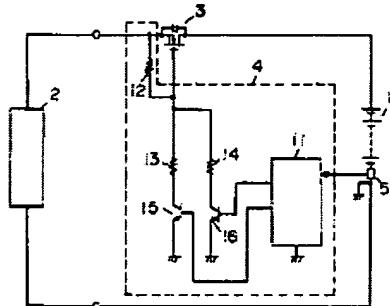
As to the method claims 13, 15: the method steps will be met during the normal operation of the apparatus described above.

Claims 1-4, 6, 9-13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over disclosed prior **JP-11164489** in view of **JP-08140281**.

JP-11164489 discloses in figures 1-3 and abstract a wake up circuit 4 comprising:

a comparison circuit 11 configured to receive a first signal representative of a charging current level provided to a battery via a path/via FET 3 and a second signal representative of a predetermined wake up current level/prescribed value and to provide a comparison output signal in response to said first and second signal and

【図1】



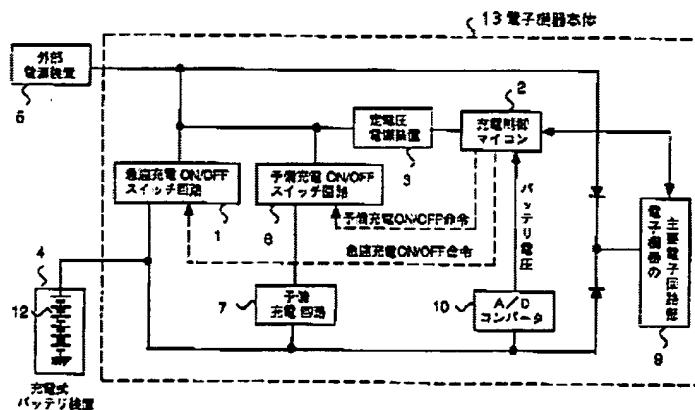
and an output decision circuit 11 configured to receive at least said comparison output signal said output decision circuit providing said comparison output signal to control a state of said switch 3, said switch coupled to said path. It would have been obvious to a person having ordinary skill in the art at the time the invention was made to make integral the comparison circuit and the output decision circuit,

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since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routing skill in the art. *In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965)*. See MPEP 2144.04. JP-11164489 does not disclose a selector signal from a selector circuit, said output decision circuit providing said selector signal.

JP-08140281 discloses in figures 1-10 and abstract a selector signal from a selector circuit [see fig.1] / charging control microcomputer 2 starts the charging, and turns off a quick charging ON/OFF switch circuit 1 so as to perform preliminary charging, and turns on a preliminary charging ON/OFF switch circuit 6 to activate a chargeable battery device being overdischarged, and pull up the output voltage so as to enable quick charging by arranging the constitution such that the quick charging is performed when the charging voltage of the chargeable battery device reaches the voltage capable of quick charging. Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify JP-11164489's apparatus and include a selector circuit, as disclosed by JP-08140281, in order to activate a chargeable battery device being overdischarged, and pull up the output voltage so as to enable quick charging by arranging the constitution such that the quick charging is performed when the charging voltage of the chargeable battery device reaches the voltage capable of quick charging.

【図1】



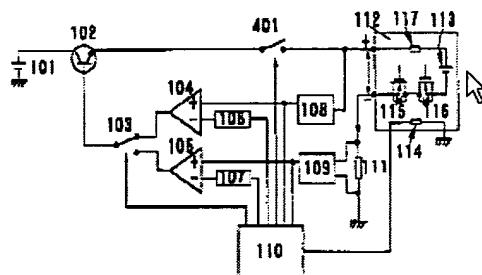
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Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over disclosed prior art **JP-11164489** and **JP-08140281** in view of disclosed prior art **JP-2002142380**.

JP-11164489 and JP-08140281 do not disclose an error amplifier.

JP-2002142380 discloses a pre-charging unit performs pre-charging until battery voltage reaches charging start voltage including error amplifiers 104 and 105 providing signals to a control logic circuit controls switching between constant-voltage control and constant-current control, switching of the charging switch 401, and control values for constant voltage and constant current in order to detect the battery voltage accurately.

【図1】



101 電源 (Vcc)	111 電圧検出抵抗
102 出力ドライブ回路	112 リチウムイオン電池パック
103 電流切替回路	113 リチウムイオン電池
104 電圧制御OPアンプ	114 サーミスター
105 電流制御OPアンプ	115 充電用FET
106 電圧检测基準電圧	116 放電用FET
107 電圧检测基準電圧	117 電池内部抵抗
108 充電電圧検出回路	401 充電スイッチ
109 放電電圧検出回路	
110 開閉ロジック回路	

### *Allowable Subject Matter*

The indicated allowability of claim 7 is withdrawn in view of the disclosed reference to Leppo et al. [6172478][see rejections based on Leppo above].

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The prior art cited in PTO-892 and not mentioned above disclose related apparatus: "**Battery management ICs buy more operating time**" discloses "Accuracy is also important in battery protection ICs," according to Jim Hill, applications engineer for ON Semiconductor (Phoenix). Again, the goal is to monitor operating voltages and currents to well within 1 percent. ON Semi's new NCP802 for use in one-cell Li-based battery packs, which integrates various internal delay circuitry to minimize external component count, senses cell voltage (to within plus/minus 25 mV), charge current and discharge current and controls the state of two n-channel MOSFET switches. The switches are in series with the cell's negative terminal. During a fault condition, the NCP802 turns off one of the MOSFETs, disconnecting the battery".

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Pia Tibbits whose telephone number is 571-272-2086. If unavailable, contact the Supervisory Patent Examiner Karl Easthom whose telephone number is 571-272-1989. The Technology Center Fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PFT

September 11, 2006

Pia Tibbits

Primary Patent Examiner

